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Title PARAMETRIC STUDY OF RAM ROCKET PERFORMANCE

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Abstract Air breathing propulsion has the inherent advantage of yielding a high specific impulse and compact propulsion system. In space vehicle applications, the payload capability can be increased by a factor 3 to 5 if an airbreathing propulsive system is employed. This report deals with evaluation of performance of an air-augmented rocket as a function of various parameters like flight Mach number, altitude, air augmentation ratio and equivalence ratio of a primary rocket (burning MMH and N_2O_4).

A 1-D analysis carried out indicates that specific impulse of a ram rocket can be increased by a factor of 1.2 to 3.0 as compared to that of a pure rocket.